

REMARKS/ARGUMENTS

Favorable consideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-20 are presently active in this application, Claims 1-11, 13-18 and 20 having been amended by the present amendment.

In the outstanding Official Action Claims 1-6 were rejected under 35 USC §103(a) as being unpatentable over Applicants' admitted prior art ("APA") in view of Miyazaki (JP 09-331420); Claims 7-11, 13-18 and 20 were rejected under 35 USC §103(a) as being unpatentable over Miyazaki in view of Shimoyama (5,355,164); and Claims 12 and 19 were rejected under 35 USC §103(a) as being unpatentable over Miyazaki in view of Shimoyama as applied to claim 7 above, and further in view of Matsunaga (US 6,239,839 B1).

In light of the outstanding grounds for rejection, Claims 1, 7 and 14 have been amended to clarify the claimed invention and thereby more clearly patentably define over the cited references. The remaining claims have been amended to correct minor informalities. Now new matter has been added.

Turning now to the rejection of Claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over the APA (in regards to Figure 10) in view of Miyazaki, the outstanding Official Action concedes that the APA does not disclose at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, but relies on Miyazaki to show the non-disclosed feature. To that end, the Official Action asserts that Miyazaki discloses a solid state image pickup device that at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other (Drawing 3).

In response, it is noted that amended Claim 1 recites, inter alia, "a plurality of vertical signal lines on which signals are read out from the unit cells selected by the selecting circuit,

at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween.” Miyazaki neither teaches nor suggests this feature of amended Claim 1.

On the contrary, in FIG. 3 of Miyazaki, the vertical lines are connected together, but through the corresponding switch transistors 5. It is therefore clear that Miyazaki does not teach the above-described claimed feature of “at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween.”

Since in the solid state image sensor device recited in amended Claim 1 the vertical signal lines in the optical black pixel regions are directly connected with each other, with no switching elements therebetween, noise does not occur when reading signals and thus vertical stripe-like noise in the read data is suppressed to be small. In Miyazaki, since the switch transistors 5 are turned on/off in turn when averaging signals, noise occurs due to the turn on/off switching, and thus considerable vertical stripe-like noise would be contained in the read data. In view of this difference in structure and in result, it is respectfully submitted that amended Claim 1 and Claims 2-6 dependent therefrom patentably define over the combination of Applicant’s APA and Miyazaki.

Regarding the rejection of Claims 7-11, 13-18 and 20 under 35 U.S.C. 103(a) as being unpatentable over Miyazaki in view of Shimoyama, the outstanding Official Action states the position that Shimoyama discloses a method and apparatus of correcting image read signals by removing the influence of dark current therefrom, and the method and apparatus can be configured for a linear sensing device or area-sensing device. The outstanding Official Action further states the position that Shimoyama discloses the image sensing cell area has a plurality of optical black pixel regions.

However, neither Miyazaki nor Shimoyama discloses the claimed feature of “at least two of the vertical signal lines in the optical black pixel regions being directly connected with each other, with no switching elements therebetween” recited in each of base claims 7 and 14. Hence, the combination of Miyazaki and Shimoyama fails to render Claims 7 and claims 8-11 and 13 depending therefrom and Claim 14 and Claims 15-18 and 20 depending therefrom, unpatentable.

In regard to the rejection of Claims 12 and 19 under 35 U.S.C. 103(a) as being unpatentable over Miyazaki in view of Shimoyama and further in view of Matsunaga, the outstanding Official Action states the position that Shimoyama further discloses the sensor comprises at least two optical black pixel regions (BC, Dc), the unit cells of one (DC) of which includes a photoelectric conversion element and the unit cells of the other (BC) of which includes a photoelectric conversion element (col. 3, lines 45-63). Also, the outstanding Official Action further states that it is notoriously well known in the art for photoelectric conversion elements to be configured as PN junction diodes as taught by Matsunaga (col. 8, lines 53-58; col. 10, lines 13-29). However, Claims 12 and 19 depend upon base claims 7 and 14, respectively, and thus are not rendered unpatentable even by the combination of Miyazaki, Shimoyama and Matsunaga.

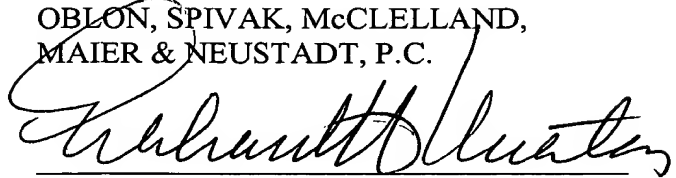
Accordingly, in view of the present amendment and in light of the above comments, it is respectfully submitted that each ground for rejection has been overcome, and that the amended claims patentably define over the prior art. The present application is therefore

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believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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